

ABSTRACT

1 A shaftless cooling fan is comprised of a fan body pivotally mounted on
2 a fan base through a configured shaft. The fan base further comprises a plurality of
3 vents, an electrical device for driving the fan body, a recess in its top and bottom
4 ends for positioning a shaft end respectively, and a plurality of electromagnets
5 surrounding the recess in the bottom end. The fan body is rotatably positioned in
6 the fan base by placing the shaft ends in respective recesses, and there is also a
7 plurality of permanent magnets aligned surrounding the lower shaft end, in which
8 every permanent magnet is comprised of a magnetic N-zone, an S-zone, and a
9 Neutral zone, and repeatedly structured. Every electromagnet is controlled by the
10 electrical device to form magnetic zones corresponding to the N-zone, S-zone, and
11 Neutral zone of each the permanent magnet, such that each permanent magnet is
12 driven to rotate the fan body by changing the magnetic zones in each
13 electromagnet.